

BENCHMARKS

VOLUME 7 NUMBER 1

NORTH TEXAS STATE UNIVERSITY

JANUARY 1986

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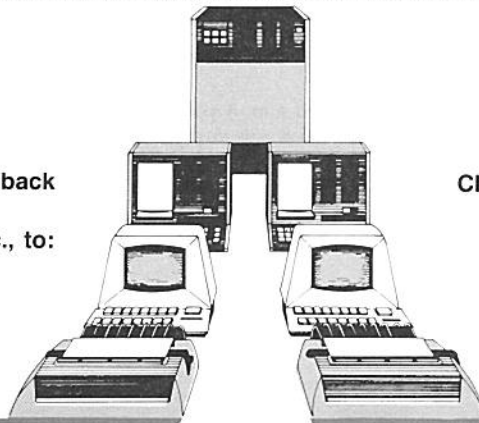
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BENCHMARKS Reader/User feedback is encouraged.

Send all letters, suggestions, etc., to:
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SERVICES AVAILABLE TO USERS OF THE NTSU COMPUTING FACILITIES

The NTSU Computing Center is located in the Information Sciences Bldg., Room 119. Telephone: (817) 565-2324. HELP DESK phone: 565-4050. Graphics Lab phone: 565-3479

BENCHMARKS QUESTIONS/CONTRIBUTIONS, ETC. - Claudia Lynch

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STUDENT PROGRAMMING PROBLEMS - CSCI Dept., GAB Room 542A; BCIS Dept., B Room 152

JCL PROBLEMS; PASSWORD & OPERATING SYSTEM PROBLEMS; COMMUNICATION/TERMINAL PROBLEMS - Help Desk

DATA ENTRY & KEYPUNCH; TEST SCORING & ANALYSIS - Betty Grise

ADMINISTRATIVE APPLICATIONS - Coy Hoggard

PRINTOUT RETRIEVAL - RJE Operators

DIALING UP NTSU COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300 BAUD: (817) 565 - 3300

1200 BAUD: 565 - 3499

300 BAUD: D/FW METRO 429 - 6006

After a communications link has been successfully established, the user will receive the # prompt. At this point, it will be necessary to issue the appropriate CALL command to connect with a computer.

The numbers that will accept either 300 or 1200 baud communications (connected to modems with an autobaud A feature) are currently out of order. Watch MUSIC/SP News and *Benchmarks* for information concerning their availability.

CALL 8040 will connect with the
8050 NAS/8043 (for MUSIC/SP access)
8060

CALL 3270 will connect with the NAS/8043 through
3280 the 3270 protocol converter

CALL DEC will connect with the VAX Cluster
CALL 780 will connect with the Research VAX

CALL 2000 will connect with the HP-2000

NTSU CABLE SYSTEM SCHEDULE

The current configuration of the NTSU cable system is as follows:

Channel 8 — Tager microwave channel. Carries broadcasts to and from NTSU to other links in the Tager network.

Channel 10 — NTSU Computer System Status Monitor (SSM). Displays the current status of the NAS, VAX and HP computer systems supported by the Computing Center.

Channel 7 — NT Daily. Broadcast originates from the NTSU Journalism Department.

Channel 12 — Sammons Cable. Currently broadcasts Cable News Network (CNN), unless a special program is requested.

Special broadcasts to and from classrooms (on channel 11), etcetera can be arranged by contacting the Media Library (565-2484).

HOURS FOR NTSU COMPUTER ACCESS AREAS*

SPRING 1986:

<u>Days</u>	<u>Times</u>	<u>Location</u>
Sunday	2-10 p.m. Noon-Midnight 2-11 p.m.	ISB 110 Terminal Area Computing Center RJE GAB 550C
Saturday, Sunday	Noon-11:45 p.m. Noon-5 p.m.	College of Business Graphics Lab
Monday Tuesday-Saturday	7:00 a.m.-Midnight 7:00 a.m.-Open 24 hrs/day	Computing Center RJE Computing Center RJE
Monday-Thursday	7:30 a.m.-10 p.m. 8:15 a.m.-11:45 p.m. 8 a.m.-Midnight	ISB 110 Terminal Area College of Business GAB 550C
Monday-Friday	8 a.m.-10 p.m.	Graphics Lab
Friday	7:30 a.m.-9 p.m. 8:15 a.m.-7:45 p.m. 8 a.m.-8 p.m.	ISB 110 Terminal Area College of Business GAB 550C
Saturday	9 a.m.-6 p.m. CLOSE Midnight CLOSED	ISB 110 Terminal Area Computing Center RJE GAB 550C

*Exceptions to above schedule for GAB 550C: 3/8, 5/15 10 a.m.-8 p.m.; 3/14 8 a.m.-5 p.m.; 3/16 Closed; 3/17-3/20 11 a.m.-8 p.m.; 3/21 11 a.m.-5 p.m.; 5/12-5/15 8 a.m.-10 p.m.; 5/16 8 a.m.-5 p.m.

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*      NEW POLICIES,
*      PROCEDURES,
*      AND OTHER
*      IMPORTANT
*      STUFF
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*****

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Computing Center Director Now Associate VP

Richard Harris, Director of the NTSU Computing Center since its inception, was appointed Associate Vice President of Computing in December. The Computing Center staff congratulates Mr. Harris and is glad to know that his new position will not remove him from our midst.

Data Set Naming Convention Reminder

The standard naming convention for OS/MVS disk data sets and tape data sets residing on TMS volumes continues to be enforced. This means that if you do not use the standard naming convention when creating your data sets, they are subject to being purged at any time, without additional notice. Below is the naming convention you should follow:

USER.MYID.NAME

Where: USER - *must* appear
 . - *must* appear
 MYID = your USER ID
 . - *must* appear
 NAME = one or more optional fields (each of which may not exceed 8 characters), separated by periods.

Note: The total length of the data set name may not exceed 44 characters. This includes the first three mandatory fields and any periods. It is advisable to keep tape data set names to 17 characters, as TMS truncates anything larger than that to the last 17 characters it reads. This could lead to some confusion about the actual name of your data set.

Watch That Space!

It looks as if disk space will be at a premium this semester, so be careful! The long awaited disk drive acquisitions have been delayed, and we will have to make do with what we have until such time as the situation can be rectified. This is going to be especially critical for MUSIC/SP users. So, if you are wise you will be judicious about which files you keep, not cluttering the disks unnecessarily.

VAX Cluster a Reality

By Ron Brashear, VAX System Manager

The VAX Cluster that has been talked about in previous issues of *Benchmarks* has become a reality. On Friday the 23rd of January, the LAN was re-addressed so that the Cluster could be accessed by a single call. The new calls are as follows:

#CALL DEC (calls the VAX Cluster - formerly call A780, B780)

#CALL 780 (calls Research VAX - formerly call DEC)

Those people who had individual accounts on both the A and B VAXs now have a single account pointing to the top-level directory of one or the other of these two account hierarchies. The other still exists, however, on the other DU drive. (For example, if your main account is DUA1:[FE60] the other account can be read by issuing the command: **\$set default DUA2:[FE60]**) The plan is to move all individual accounts to drive DRA0. We wish to consolidate dual accounts into a single account, so please copy essential files from the other accounts to the main account when you get a chance to do so.

Graphics Lab Opens

By Bob Brookshire, Manager of Academic Computing (AS03 @ NTSMUSIC)

The long-awaited NTSU Computer Graphics Laboratory opened for business on Thursday, January 23. The Lab is designed to meet several needs of departments around campus, including access to the DISSPLA graphics software running on the VAX/VMS systems, SAS/GRAPH running under the CMS operating system, and the AutoCAD computer aided design package running on Texas Instruments Professional Computers. The Lab will be used initially for teaching by the College of Education, the Industrial Technology, Art, Geography, and Computer Sciences Departments, and for research by faculty and graduate students in many departments around campus.

The Lab is the result of several years of work on the part of a committee, chaired by Jack Davis, Vice Provost and Associate Vice President for Academic Affairs. Committee members, which included representatives from the major user departments as well as the Computing Center, evaluated graphics hardware from a wide variety of manufacturers to determine which equipment would best serve NTSU. Funding for the Graphics Lab equipment and staffing was made available by then-Vice President for Academic Affairs, Robert B. Toulouse. The space formerly occupied by the Bindery, in the basement of the ISB, was renovated during the Fall semester.

The Graphics Lab contains 20 Texas Instruments Professional Computers configured to be primarily graphics workstations. These microcomputers are equipped with 10 Mbyte Winchester disk drives, 512 Kbytes of memory, 8087 numeric co-processors, color monitors, and either a mouse or digitizing tablet for graphics input. Output from these computers can be printed on Epson graphics printers, Amdek plotters, or a large Calcomp drafting plotter.

In addition, the Graphics Lab has ten terminals available to access graphics software on either the VAX/VMS or CMS central systems. These terminals include six Visual 241 medium resolution color graphics terminals, two Hi-Rez high resolution monochrome graphics terminals, one Tektronix medium resolution terminal, and a Hewlett-Packard graphics terminal. Output from the graphics software on the VAX/VMS or CMS operating systems can also be directed to the Calcomp plotter.

Initially, the Lab will be open from 8:00 a.m. to 10:00 p.m., Monday through Friday, and noon to 5 p.m. on weekends. The Lab can be reserved for classroom instruction; during these periods, it will be unavailable for general use. For more information, contact one of the Graphics Lab assistants at 565-2324, or come by the Lab in the basement of the North wing of the Information Science Building.

A Graphics Terminal Emulator for the TIPC, and its Free!

By Don Retzlaff, Computer Sciences Department

GTERM is a public domain software package written here at NT as a joint project between the Computing Center and the Computer Sciences Department. GTERM emulates a VT125 terminal, and it interprets the ReGIS protocol in the same way as a standard VT125 graphics terminal, thus allowing the TIPC to act as a graphics terminal for the Local Area Network. The hardware required to run GTERM is a TIPC with at least 256K of RAM, color or monochrome monitor, a communications card, and a 3-plane graphics card. It will successfully display graphics images produced by system software such as DISSPLA, which runs on the VAX computers, and SAS/GRAPH which runs on the NAS/8043.

The package supports a rich subset of the ReGIS protocol, including positioning and vector commands, the setting of line colors, overlay, erase, replace and complementing display modes, and the display of text. A subset of the VT100 protocol is also supported, providing complete use of VAX VMS software such as EDT and EVE editors.

GTERM has a large set of options that allow the user to control the operation of the software. These include a protocol trace mode, variable communications baud rate from 50 to 9600 baud, selective prompt line, odd-Y addressing mode that allows the display of 760x600 pixel images, the ability to preset the color of the graphics image, and a windowing feature that allows the user to blow-up a selective portion of the graphics image.

GTERM comes complete on a single 5 1/4" floppy disk. The disk contains a user's document that describes the features of the software with many examples showing the use of the VT125 protocol. An additional disk that contains the source for GTERM will be available shortly. The GTERM package can be obtained by contacting Scott Barber at the Computing Center (565-2324).

New HELP Files on MUSIC/SP

Several new HELP files have been added to the MUSIC/SP system. They are available from *GO mode by entering the word HELP and then the name of the help file that you want (always depressing the 'RETURN' key to send the computer your message, of course). The new files are:

JCL : contains JCL setups for Assembler, BMDP, ANS COBOL, FORTRAN G, FORTRAN G1, Pascal, PL/I, SAS, SNOBOL, SPITBOL, SPSS-X, WATBOL, WATFIV, and FORTRAN 77.

SURF : contains OS/MVS batch SURF syntax and examples.

SHORTCOURSE: contains the latest schedule for Computing Center short courses.

TCOM: contains the latest schedule of Computing Center short courses offered at TCOM

OPENHOUSE: contains the schedule of Computing Center open houses.

Computer-Based Training System Now Available on the NAS/8043

By Claudia Lynch, *Benchmarks* Editor and PHOENIX Supervisor (AS04 @ NTSMUSIC)

The Computing Center has acquired PHOENIX, a computer-based training (CBT) system that can be used for computer assisted instruction (CAI), computer managed instruction (CMI), computer-based reference (CBR), prototype development, electronic mail, corporate culture development (CCD), and many other exciting applications. PHOENIX contains an authoring system called EASE (Easy Authoring System for Education), which allows users to author their own courses. This makes PHOENIX an extremely versatile system, since it allows for both the presentation of acquired courses as well as "in-house" authoring.

PHOENIX Courseware

PHOENIX is pretty devoid of courseware at the current time, although we have plans to add some. You can, however, access the same CAI that is running on MUSIC/SP. These courses are: MUSIC, EDITOR, and SCRIPT. Additionally, there is a course called SASI (you can get a copy of the booklet that goes with this from me). All these courses can be accessed with the ID code GUEST. The only drawback to this ID code is that it does not keep track of where you are in the course. Thus, if you sign off of a course before completing it, you will have to start over. If for some reason you want to be kept track of on these courses (or want your students to take the courses), please contact me and I will assign you with individual ID codes to the courses you wish to take. I also have some catalogues from various companies and universities that lists courseware they have on a variety of subjects. Most of the courseware is rather expensive, but some can be had free of charge. I will be glad to let you look through these catalogues, should you so desire.

Signing on to PHOENIX

The procedure for signing on to PHOENIX involves going through the network, just like you would do to sign on, in full-screen mode, to MUSIC/SP. You should enter the commands that appear in bold face below (the computer responses are not highlighted), depressing the 'RETURN' key where indicated. It should be noted that PHOENIX expects all responses to be in *lower case*.

Screen 1:

#call 3270 'RETURN'

Screen 2:

```
#CALL COMPLETED TO 327n,n
RETURN RETURN
ENTER 2-DIGIT TERMINAL TYPE OR "M" FOR MENU - 02
RETURN
```

Screen 3:

```
dial mvssp RETURN
DIALED TO MVSSP
RETURN
```

RUNNING

Screen 4:

```
p RETURN
CLEAR SCREEN/C/P/OFF
```

Screen 5:

```
ENTER SIGN-ON NUMBER -> guest TAB
ENTER COURSE NAME -> sas1 RETURN
ENTER PASSWORD -> RETURN
```

PHOENIX

PPPPPP	HH	HH	OOOOO	EEEEEEE	NN	NN	IIIII	XX	XX
PP PP	HH	HH	OO OO	EE	NNN	NN	II	XX	XX
PP PP	HH	HH	OO OO	EE	NNNN	NN	II	XXXX	
PPPPPP	HHHHHHH	OO	OO	EEEE	NN	NN NN	II	XX	
PP	HH	HH	OO OO	EE	NN	NNNN	II	XXXX	
PP	HH	HH	OO OO	EE	NN	NNN	II	XX	XX
PP	HH	HH	OOOOO	EEEEEEE	NN	NN	IIIII	XX	XX

THE COMPUTER-BASED EDUCATION SYSTEM

Copyright 1985 Goal Systems International Inc.
 PHOENIX is a registered trademark of Goal Systems Int'l.

TO LEAVE PHOENIX, PRESS ANY PF OR PA KEY

Screen 6:

PHOENIX 5.1A
 date time

Current Users: number

RETURN

PRESS ENTER

Signing off of PHOENIX

When you wish to leave a course, simply type the words **sign off** (RETURN) at any place the course expects you to enter an answer to a question. Once you have done this you will get back to a screen that says: **KEY C FOR COMPLETE, P FOR PHOENIX, OR OFF TO RETURN**. You should type **off** if you wish to get off the system completely and depress the (RETURN) key once more to get the VM/370 logo. Finally you need to "DONE" your session. This is accomplished by depressing the (ESC) and (RETURN) or (DEL) keys (depending on the way your PCU is configured). This should cause a # to appear on your screen. Enter the word **DONE** next to the # and depress the (RETURN) key twice. This drops your session from the network, thus freeing up a port for someone else to use to access the computer.

Microcomputer Purchases with Proposition 2 Money

Reprint of a Memo issued by The Computing Council Steering Committee (1/10/86)

Proposition 2 funding has provided NTSU with an opportunity to take advantage of volume purchasing of microcomputers. Over the past several weeks a subcommittee of the University Computing Council has been studying the issue and has recommended the following:

1. Those departments that wish to buy computers that are 100% compatible with existing Texas Instruments Professional Computers may buy additional TIPC's on a Contract Purchase Order, referencing our current purchase agreement with Texas Instruments. Our agreement allows us 40% off the list price.
2. Those departments that require 100% IBM compatibility may buy IBM Personal Computers on a Contract Purchase Order, referencing our new volume purchase agreement with IBM. This agreement allows us 37% off the list price of system units, with all other items at 32% off.
3. Those departments who wish to buy computers that are closely compatible with the IBM PC at greatly reduced prices may purchase the NTPC which will be assembled in the University Microcomputer Maintenance Shop. (See the description below.)

The third alternative provides a departure from past norms for NTSU. The Micro Maintenance Shop will assemble an IBM PC compatible micro. If the NTPC meets your needs, it can be ordered from the Micro Maintenance Shop. The NTPC is a high quality, low cost machine with a high degree of compatibility with IBM PC/XT. It should provide a very cost effective solution to the microcomputing needs of very many, perhaps most, NTSU users.

If you have already prepared a purchase requisition for a TIPC, an IBM PC, or similar machine, your requisition has been returned to your Dean with the thought that you may wish to consider the NTPC. By purchasing the components of the system in quantity the University can make the NTPC available at a good price. Moreover, the Maintenance Shop can provide the quality maintenance necessary for any system.

We recognize, however, that some departments may need true IBM PCs, or would like to maintain consistency with existing TIPC's. If either of these alternatives apply to you, those decisions will receive support.

As in the past, departments wishing to purchase computers other than these types may do so with the understanding that the Micro Maintenance Shop may be able to provide support on an actual cost basis.

The NTPC

The NTPC is based on a motherboard manufactured by ACS International, called the ACS-1000. It includes an 8088-2 microprocessor capable of operating at either 4.77 or 8 MHZ, a time-of-day clock with battery backup, two RS232-C serial ports, one Centronics-compatible parallel port, and a hardware reset button. It has six expansion slots, and is socketed for the 8087 math co-processor. The NTPC will also include a case similar in appearance to the IBM PC/XT, a 135 watt power supply, a Keytronics 5151 keyboard with separate numeric and cursor control keys, a parallel printer cable, and one 360K floppy disk drive.

A medium-resolution color graphics adapter, compatible with IBM's, will be available, as well as a color monitor. A higher-resolution monochrome adapter is also available to drive a monochrome monitor. An adapter and monitor are required for the system.

Added memory will be available in 256K intervals up to a total of 1,024K. The cost for each 256K expansion will be less than \$21.

Assembly and maintenance costs for the system has been assessed and will be 10 percent of the cost of each system.

Editor's Note: Contact your departmental chairperson for more information about ordering PCs for your department.

Academic Computing Services Gains New Position

Academic Computing Services has gained a new position, designed primarily to provide ADABAS/COM-LETE and COBOL support to the College of Business. Telka Clem, an employee of the Computing Center in the Information Systems Area, has transferred to this position, bringing a lot of expertise with her. She holds a BBA in Information Systems from NTSU and has worked with ADABAS since 1984. She was a data base consultant for the BCIS department before her graduation.

Changes in Data Entry Personnel

A new face in the Data Entry Section of the Computing Center appeared in December. That face belongs to Neva Bloom. Ms. Bloom, a native of Mississippi, has many years of data entry experience. Her added expertise will be appreciated by all who depend on these hard working people for their data entry needs.

Unfortunately, the Data Entry Section also recently lost a valuable employee. Lillian Ragsdale retired from the University on January 31, 1986. We tried to get her to stay, but the pull of the countryside was just too great.

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*      MICROCOMPUTERS               *
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Micro to Mainframe File Transfer

By Dave Molta, Technical Support Communications Group (AC04 @ NTSMUSIC)

In a recent *Benchmarks* article, I discussed some of the advantages of using a microcomputer as an intelligent workstation to communicate with the NAS/8043 and the VAXs. This article presents a summary of non-protocol file transfer techniques which may increase your productivity when communicating with NTSU computer systems. By non-protocol, I mean that no error checking takes place during file transfer. Protocol file transfers, on the other hand, utilize some sort of software algorithm which allows the remote computer to confirm that the file transferred contains no transmission errors. If any errors are present, the protocol will retransmit those portions of the file which contain errors.

Obviously, it is generally preferable to utilize a file transfer protocol whenever possible, but the lack of standardization in this area often makes non-protocol file transfer the only alternative when communicating between micros and mainframes. For example, the VAX contains a fairly sophisticated file transfer utility called KERMIT (see *Benchmarks* July/August 1985), but KERMIT has been implemented on very few commercial microcomputer communications software packages. MUSIC/SP, on the other hand, contains its own file-transfer protocol for use with the IBM PC, but this protocol requires that the PC is running a companion program called PCWS which is currently unavailable for non-IBM PC compatible systems. Fortunately, in many cases, particularly when we are dealing with small text files, non-protocol file transfer may be sufficient to accomplish your objectives.

With such a great variety of microcomputer hardware and software currently in use among NTSU computer users, it is not feasible to outline the proper file-transfer procedures for all of them. The examples presented in this article are oriented towards two particular microcomputer communications software products: Crosstalk XVI Version 3.5 and VTERM Version 1.04. Crosstalk XVI is the most widely used communications package for IBM PC compatible microcomputers and is also available for the TIPC while VTERM is available free for use on university-owned TIPC's under conditions of a site-license maintained by the Computing Center. As for users of non-IBM/TI microcomputers, the Computing Center will be happy to make recommendations concerning appropriate communications software, but our level of support for these other software products is limited.

Non-protocol File Transfer

Perhaps the biggest advantage of using a microcomputer as an intelligent work station to communicate with the VAXs and MUSIC/SP rests in the capability to transfer files between systems. For example, you may wish to "download" mail messages or program listings from the mainframe to your microcomputer, save the information in a disk file, and print it on your micro's printer at a later date. Alternatively, you might choose to create a text file or a program listing on your favorite micro text editor and later "upload" it to the mainframe for formatting or compiling. As a general rule, it is much easier to download than it is to upload, particularly when communicating with MUSIC/SP, but both are possible with the appropriate communications software.

Non-protocol file transfer is a simple way of transferring ASCII files between a microcomputer and the mainframe. These files may contain text or data but they cannot be binary program files. Non-protocol file transfer differs from protocol file transfer in that the latter incorporates a procedure to test for transmission errors. These transmission errors are usually the result of noise on the data communications medium. Errors are particularly likely to occur when communicating at high speeds (1200 baud or greater) over ordinary voice-grade telephone lines. If you are communicating with a mainframe directly over the Local Area Network, transmission errors will not be a problem since the network contains its own error checking protocol which guarantees data integrity.

Downloading Files

The easiest way to download a file from the mainframe to a micro is simply to list the file on your screen while simultaneously capturing it to disk. Once you have captured the file to disk, you can edit it with an ordinary text editor such as Wordstar. For example, you might be performing a regression analysis using SPSS-X and wish to incorporate the results into a paper. By downloading the results of the SPSS-X program into a disk file, editing out extraneous material, and merging that file into your paper (using the <CTRL> <K> <R> feature in Wordstar), you can save yourself a great deal of work manually reentering tables.

Downloading From the VAX to a PC

The procedure for capturing to disk will vary according to the software you are running on your micro, but virtually all communications software programs possess this capability. In order to download a file from the VAX using Crosstalk XVI, for example, you would log onto the VAX and issue the following command to the VAX VMS operating system (NOTE: all boldface material is entered from your micro):

\$ Type [filename] ****Do not press 'RETURN' yet****

where [filename] is the VAX VMS file you wish to transfer to your micro. Return to Command mode on Crosstalk and issue the following command:

Command? **CAPTURE [drivename]:[filename]** 'RETURN'

where [drivename] is the disk drive you wish to save the file on (A:, B:, E:, etc.) and [filename] is any valid filename allowed by your microcomputer's operating system. This command will open a disk file on the specified disk, and any subsequent information which is displayed on the screen will also be written to this file. Once you have opened the capture file, you should instruct the mainframe to list your file by pressing 'RETURN'.

After the VAX has finished listing your file, you should close the capture file on your micro. In Crosstalk XVI, issue the following command:

Command? **CAPTURE** - 'RETURN'

This will write the remainder of the capture buffer to the disk and close the file. This file can now be edited with any normal text editor which reads ASCII text files (NOTE: If you use Wordstar, edit the file as a Non-Document file if you plan to upload it later).

The capture feature is slightly different on VTERM. In order to download a file using VTERM, switch to setup mode by pressing the 'INS' key. Using the arrow keys, move the cursor to the Log Device parameter and, by pressing the 'ESC' key, change the log device to DISK. Then press 'SHIFT' 'L' and type the filename you wish to save the mainframe file in (NOTE: The file name does not have to be the same as the mainframe file name, but it must be a valid file name on your PC's operating system). Press the 'INS' key again to return to terminal mode and issue the following command:

\$ Type [filename] ****Do not press 'RETURN' yet****

Now press 'CTRL' 'PRINT' (or 'CTRL' 'PRTSC') and you will see the word 'LOG' flashing on the status line. Press 'RETURN' and your file will be displayed on the screen while simultaneously being written to disk. After the listing is completed, press 'CTRL' 'PRNT' again to close the file.

Downloading From MUSIC/SP to a PC

The procedure for downloading files from MUSIC/SP to a PC is similar to the one outlined above for the VAX with a few minor variations. First, you must be communicating with MUSIC/SP through an asynchronous communications port on the network (i.e. CALL 8040 instead of CALL 3270). Second, when you sign on to MUSIC/SP (or after you have already signed on), you should specify your terminal-type as LA36 by issuing the following command:

***GO**

/ID MYID;LA36 'RETURN'

***In Progress**

Password?

MYPASS 'RETURN'

where MYID is your MUSIC/SP ID and MYPASS is your logon password. The reason for using the LA36 terminal-type is to avoid the —More— message from appearing every 24 lines in your file. Finally, instead of issuing a Type command (as on the VAX), you should use the List command on MUSIC/SP.

Uploading Files

As mentioned earlier, it is a bit more difficult to upload files from a PC to a mainframe than it is to download files from a mainframe to a PC. This is particularly true of MUSIC/SP since that operating system requires the PC to wait for a question mark before it sends each line of a file. Thus, in order to upload to MUSIC/SP, the communications software running on your PC must have a file transfer feature usually referred to as prompted upload. With prompted upload, the PC sends one line of data, waits for a prompt, sends another line of data, waits for a prompt, etc. If your communications software lacks this feature, you will not be able to upload directly to MUSIC/SP (see the discussion later in this article for a possible way around this restriction). The VAX, on the other hand, makes uploading considerably easier since it does not require prompting.

Uploading From a PC to the VAX

In order to upload a file to the VAX, you must first enable the flow control feature of the VAX VMS operating system. This feature allows the operating system to accept transmissions of data at rates of speed much higher than you would be capable of if you were typing the information yourself from the keyboard (NOTE: This command is not necessary if you are communicating at 300 baud). Begin by issuing the following command:

\$ SET TERM /READSYNC .RETURN

Next, you should issue the following command to VAX VMS to create a file and give it a name:

\$ CREATE [filename] .RETURN

where [filename] is any valid VAX VMS file name. Return to command mode on your PC's communications software and issue the command to transmit a file. On Crosstalk XVI, you should issue the following:

Command? **SEND [drivename]:[filename] .RETURN**

where [drivename] is the disk drive where the file you wish to transmit is located and [filename] is the name of the file you wish to upload (NOTE: Be sure the LWAIT command on Crosstalk is set to NONE when sending files to the VAX). Once Crosstalk has finished sending the file, you should return to terminal mode and type CTRL-Z to close the file. You may wish to list the file using the TYPE command on the VAX.

If you are using VTERM, you should follow the procedures outlined above to enable flow control (SET TERM /READSYNC) and create a VAX VMS file (CREATE [filename]). Instead of using the Crosstalk send command, however, VTERM utilizes an autotype command which serves the same purpose. To autotype (send) a file to the VAX, first press the .INS. key to get into setup mode. Once in setup mode, press .Shift. .T. and enter the drive name and filename of the file you wish to send. Exit setup mode by pressing the .INS. key. Now press .ALT. .CTRL. .T. (all at the same time) and your file will be transmitted to the VAX. Once the file has been sent, type .CTRL. .Z. to close the file on the VAX. This will return you the VMS prompt (\$).

Uploading From a PC to MUSIC/SP

The most difficult form of file transfer involves uploading files from a PC to MUSIC/SP. In order to send a file to MUSIC/SP, the communications software on your PC must be intelligent enough to wait for a prompt character before it sends each line of data. Since version 1.04 of VTERM (for which NTSU has a site license) does not have this capability, it is impossible to use this version of VTERM to upload to MUSIC/SP. Crosstalk, on the other hand, makes the process relatively simple. As was the case with downloading from MUSIC/SP to the PC, you must first establish a session with MUSIC/SP by calling 8040 (call 3270 will not work). Once you have logged on, edit the file you wish to upload to and enter input mode. MUSIC/SP will prompt you with the following:

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INPUT
?
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Your communications software must be configured to wait for this prompt before it sends each line of data. However, if you set the prompt character to wait for a question mark on some communications software packages, you may lose characters during transmission since MUSIC/SP actually sends an invisible XON character (ASCII 11) after the question mark. With Crosstalk, this is not a problem since Crosstalk ignores the XON anyway. The easiest way to upload using Crosstalk is to instruct the software to count the number of characters between each line sent. Make sure you are in input mode on MUSIC/SP, press Crosstalk's attention key to toggle into command mode, and issue the following command:

Command? **LWAIT LEARN .RETURN**

This command configures Crosstalk to "learn" the MUSIC/SP prompt sequence. Now enter the following while in Crosstalk's command mode:

Command? **SEND [filename] .RETURN**

where [filename] is the name of the file you wish to upload. Crosstalk will send the first line of data, count the number of characters that MUSIC/SP responds with, and prompt you to press the space bar. Once you press the space bar, Crosstalk has all the information it needs to complete the file transfer. If you return to the Crosstalk main menu, you will notice that the LWAIT parameter is set to wait for a prompt of three characters. If you save this configuration in a Crosstalk command file (SAVE [filename] from Crosstalk command mode), subsequent uploads will not require any interaction with you since the software has "learned" the correct prompt.

Note that since this method of uploading to MUSIC/SP contains no error-checking protocol, may not prove 100 percent reliable, especially if communicating at high baud rates. In fact, if you trust what you see on the screen while the file is being uploaded, you may think your file is being mangled horribly. However, if you return to edit mode in MUSIC/SP after uploading the file and list it, you will find that there are few, if any, errors.

But What if I Don't Have Crosstalk?

If you don't have a copy of Crosstalk (or another package with prompted uploading capability), there is one other alternative method of uploading to MUSIC/SP, but it requires that you have an account on one of the VAXs and an MVS password on the 8043. First, upload your file to the VAX as outlined earlier in this article. Then, from the VAX VMS prompt, type the following:

\$ TRANSFER <RETURN>

This utility allows you to transfer files from the VAX to MUSIC/SP. You will be prompted for the name of the file you wish to transfer, your MVS and MUSIC/SP IDs and your MVS password. After supplying the appropriate information, VAX VMS will respond with several lines of information, the last of which should be the following:

[filename] queued for transfer to MUSIC ID MYID

where [filename] is the name of the file you are transferring and MYID is your MUSIC/SP ID. To save the file in your MUSIC/SP library, log onto MUSIC/SP and enter OSJR. You should see a message similar to the following:

JOB=XXX Output Ready for Music --- 46 lines

To transfer the file to your save library, issue the following command:

out J=XXX,d=pun,file=[filename] <RETURN>

where XXX is your job number and [filename] is any valid MUSIC/SP file name.

Conclusion

Transferring files between a microcomputer and a mainframe can prove to be a great convenience and a real time saver. Uploading allows you to edit files locally on your favorite text editor and transfer them to a mainframe for compiling, formatting, or further editing. Downloading allows you to capture program outputs and store them on diskettes for later use or for archiving.

Downloading is easily accomplished with MUSIC/SP or the VAXs using most microcomputer communications software packages. Uploading, while relatively easy on the VAXs, requires fairly sophisticated software for use with MUSIC/SP unless you upload first to the VAX and transfer it later to MUSIC/SP. While some of the processes may appear a bit complex at times, with a little practice, they may prove quite beneficial to you.

The Computing Center is currently investigating the possibility of implementing several file-transfer protocols, including XMODEM and KERMIT, on both the VAXs and MUSIC/SP. Look for articles on these developments in future issues of *Benchmarks*. If you experience any troubles in performing file transfers, don't hesitate to contact the Computing Center at 565-2324.

MicroBits: Micro News You Can Use

By Mike Flanery, Manager of the Microcomputer Maintenance Shop - GAB 529 Ext. 2387

All About ROM

Our first topic this month is the System ROM in the TIPC. First I had better explain what a ROM is. The word ROM is simply an acronym for **Read Only Memory**. The System ROM contains certain low-level "system" programs, i.e., the basic routines the computer needs to perform its necessary functions. Unfortunately, sometimes these ROM routines are inconsistent in the manner in which they interact with peripheral devices that are designed and added to the system *after* the ROM has been written. Because of these inconsistencies, new versions of the System ROM are usually issued as the problems are discovered and, hopefully, corrected. For example, so far TI has issued five versions of the System ROM for the TIPC.

This brings us to the point I would like to make, namely that you should be aware of problems that might arise with your TIPC due to an improper ROM version. This has come up recently when several people on campus purchased the **PRIMARY RAM UPGRADE** for the TIPC to expand their system from 256K to 512K RAM. The problem is that this particular expansion board requires a later version of the ROM. By later version I mean version 1.24 or higher. You can determine which ROM version you have quite easily by running the **DIAGNOSTICS** that came with your machine and selecting the **DISPLAY SYSTEM CONFIGURATION** item from the menu. When the system configuration is displayed, the version of the **SYSROM** is listed.

The bottom line is that you should probably upgrade your ROM (if it is below version 1.24) when you add any additional equipment to your system (Winchester disk, more memory, Speech System, etc.). The **TIPC System ROM Upgrade Kit** (TI part #2237396-0001) is available from TI on special pricing contract through Educational Marketing for \$30.

More About Disk Drives

I have often talked about disk drives and how they can go bad. Now I would like to point out some of the ramifications of a disk drive that has gone "bad" (out of alignment), but hasn't yet failed. A drive is out of alignment when the read-write mechanism cannot position itself directly over the data on a track, but instead is positioned slightly to one or the other side of the track centerline. A drive can be out of alignment without actually

producing a detectable error. This is because, although the read-write mechanism isn't centered over a track on the diskette, it can still read or write to that track. This only becomes a significant problem when you write to a disk using a drive that is mis-aligned in one direction and then try to read from that disk on *another* drive which is aligned correctly or misaligned in the opposite direction. The error you get will probably be something like "ERROR READING DRIVE X".

Think about that. Your drive could be out of alignment and you could be unaware of its problems. What's the solution? There are two things that you can do: (1) backup all your disks regularly, (2) if the Microcomputer Maintenance Shop hasn't been out to look at your machine within the last 6 months, call us and we'll perform some Preventive Maintenance on your machine.

Microbits Questionnaire

Speaking of servicing your TIPC, please fill out the questionnaire at the end of this issue and return to the Microcomputer Maintenance Shop.

Office Automation News

by Sandy Franklin, Office Automation Specialist

Formatting Diskettes

I receive a lot of calls from users who so seldom use MS-DOS commands. They get confused when it is time to format new diskettes and/or make back-up copies of diskettes they have been using. This will just be a review of the commands to refresh memories. These commands will work for MS-DOS machines as well as PC-DOS machines.

To format a new diskette on a dual floppy machine, the diskette containing the file name **FORMAT.COM** will be placed in Drive A and the diskette to be formatted in Drive B. At the A prompt type:

A> FORMAT/S B:

A message will appear asking you to make sure the new diskette is in Drive B, and press any key to continue.

The /S option will copy the System commands to the new diskette. The only file that appears on the directory of B will be **COMMAND.COM**. This will allow you to use the newly formatted diskette to "boot up" the machine.

If you do not want to use up the space for the system files and want to use the entire contents of the diskette for data files, when you format only type:

A> FORMAT B:

All 362,000 characters will then be available for use on the diskette.

To copy the contents of one diskette onto another, place the diskette to be copied in Drive A, the blank diskette in Drive B. Type the following:

A> COPY *.* B:

You will see the file names appear on the screen as they are being copied to the Drive B diskette.

Protecting Your Microcomputer

It is recommended by manufacturers that you install your PC in a protected area, away from open windows, direct sunlight, radiators, and heat vents. Avoid the center of a traffic pattern where the PC might get bumped, banged, or jostled. Also:

- * Don't install in a room with vibration from a generator or other heavy motorized equipment.
- * Don't keep turning the system unit on and off. Once on, keep it on for the entire working day.
- * Lower the brightness level of your CRT (cathode ray tube) screen when it is on, but isn't being used, to prevent "etching," or burning in a permanent image on the CRT's inner surface.
- * Tobacco smoke, liquids and food are not PC-friendly, so keep all food and beverages away from the keyboard, PC, diskettes and printer.
- * The best temperature for the PC is between 60 and 80 degrees with 50% humidity.
- * To prevent static — which can cause screen "wipe-out", memory loss or alterations and faulty data entry — keep metal paper clips, wire and other metal objects away from your PC and diskettes. Place an anti-static mat under your PC and chair or spray carpet, clothing, and work area regularly with an anti-static spray. (Be careful not to spray the system unit, keyboard, or printer.)
- * Don't use your PC during an electrical storm or at a time when a power failure seems imminent.

Micropro's Newest Word Processing Package - EASY

This is Micropro's competitive product with pfs:WRITE, an easy-to-learn word processing package. It is currently only available for IBM PCs.

With a minimum amount of training, you can become productive with EASY. Also files created by EASY can be read by WordStar, and the reverse is also true. The best news, however, is the cost. The retail price of EASY is \$150.00. If bought by the University from Micropro, there is a 40% discount making the cost per copy \$90.00.

Microcomputer Training Lab

The training lab equipment has still not been ordered. It is in with the multitude of other orders waiting for decisions to be made before being released. Training needs are still there to be met.

A couple of special classes have been set up for specific offices who have either received new equipment, or can get together several machines for group training. If your office would like to have this type of training, please contact me at 565-3856. We will try to make special arrangements so you can become productive with your equipment.

TI 855 Printer

While visiting around at various offices, I have noticed that many of you have not customized your WordStar to use the Special 855 Configuration. This was addressed at length in the July/August Issue of *Benchmarks*, pages 7-8.

If you have been experiencing problems with your printer changing the spacing on your printed copy, you will need to use the customized 855 configuration described in the aforementioned article. This will greatly enhance your printing capabilities with WordStar and your 855 printer. The customized version will allow you, through print commands in WordStar, to change font modules (change from 10 cpi to condensed print and back to 12 cpi).

If you wish, you may make an appointment with me at 565-3856. We will install WordStar for you with the custom installation of the TI 855 printer.

Problems Found in EasyWriter II

Some problems have been observed using EasyWriter II word processing package on the Texas Instruments Professional Computer. These problems are directly related to the version of MS-DOS being used on the TI as reported in TI's Release Notes with MS-DOS Version 2.13. It does not like MS-DOS version 2.11 at all.

Versions 1.25, 2.12, and 2.13 are all fine to use, but if you try to use 2.11 it will result in weird happenings in weird places. Parts of one document will mysteriously appear in other documents.

One department had changed to the later version of MS-DOS 2.13, but did not change all their system diskettes. When they booted their system up to use Multiplan with the 2.11 version, and then switched diskettes to EasyWriter II, the system was not rebooted, so the older version of 2.11 was still in memory. The problem of floating documents reoccurred. They were corrected once the system was rebooted (CTRL, ALT, DEL) with the later 2.13 version.

Three shortcomings of EasyWriter II are the following:

- (1) To get a directory listing, you have to be at the A> or system level. It does not appear after you are in EasyWriter II.
- (2) You cannot use over 80% of the diskette reliably. The older version of EasyWriter II (Dec. 82) does not properly display the disk usage percentage so you will have to use CHKDSK at the A> or system level. The newer version (Sep. 83) works the way it is supposed to.
- (3) EasyWriter II will let you put quite a few lines on a page but you need to limit the lines to 200 per page. It is best to limit the lines to 60 per page and use auto advance to go to the next page.

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Disk Backup Schedules

Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems on the NAS machines and their contents is done once every two weeks at some low activity period over a weekend.

MUSIC/SP Backup Hours

A message will be sent to all users signed on to MUSIC/SP approximately 10 minutes before backups are begun. It will be in the form ** MUSIC SHUT DOWN AT xxxx AM - SCHEDULED BACKUP **. To find out the backup hours while signed on to MUSIC/SP, enter HELP HOURS. The following backup schedule is currently in effect:

Tuesday	3 a.m. (for about 3 hours)	Weekly backup
Wednesday - Saturday	4 a.m. (for about 2 hours)	Daily backup
Saturday	Midnight (for about 2 hours)	Daily backup

VAX Backup Schedule

Incremental backup of the VAX Cluster is performed Monday through Thursday at 4 p.m. Users do not have to log-off, but any files that are open at the time of the backup will NOT be backed up.

Full backup of the Cluster is done every Friday beginning at 8 a.m. This generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done the third Tuesday of every month, in the afternoon, just before preventive maintenance. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut down; watch the system log-on message for specific times and dates.

NOTE: No backups are taken on the weekends. Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done.

NAS/8043 and NAS/6650 Performance Statistics for November

CPU	SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
8043	VM/SP3	720	0.00	720.00	0.63	719.37	99.9%
8043	MUSIC/SP	720	20.68	699.32	5.39	693.93	99.2%
8043	MVS/JES2	720	0.00	720.00	2.02	717.98	99.7%
8043	COMPLETA	720	0.00	720.00	4.83	715.17	99.3%
6650	MVS/JES2	720	0.00	720.00	2.73	717.27	99.6%
6650	COMPLETEA	255	0.00	255.00	3.76	251.24	98.5%
6650	ADABASA	720	20.71	699.29	7.58	691.71	98.9%

System Uptime = (Production Hrs. Achieved)/(Planned Production Hrs.)

Production Hrs. Achieved = (Planned Production)-(Unplanned Maint.)

Scheduled Operating Hrs. = (Planned Maint.) + (Planned Production)

MUSIC/SP Planned Maintenance Hours include 20.68 Hrs. for system backup.

ADABASA'S Planned Maintenance Hours include 20.71 Hrs. for system backup.

The NAS/8043 CPU achieved 100% uptime. The NAS/7360 DASD achieved 100% uptime.

The NAS/7350 DASD achieved 100% uptime. The NAS/6650 CPU achieved 100% uptime.

The STC 8650 DASD achieved 100% uptime. The NAS/7380 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

NAS/8043 CPU:

Miscellaneous

1. MUSIC/SP System Failures	3.64
2. MUSIC/SP System Tuning/Improvements	1.03
3. VM/SP3 System Tuning/Improvements	0.98
4. COMPLETA System Failures	1.14
5. COMPLETA System Tuning/Improvements	0.26
6. MVS/JES2 System Tuning/Improvements	0.80
7. IBM F.E. accidentally disconnected the interface on the BYMPX0 Channel	1.60

GRAND TOTAL FOR NAS/8043 8.45 HOURS

BENCHMARKS**JANUARY, 1986****NAS/6650 CPU:****Terminal Control System (IBM)**

1. 2944 I/O Channel Extender Failure	3.58 HOURS
2. 3272 TCU Failures	2.65

Miscellaneous

1. COMPLETA System Tuning/Improvements	1.77
2. COMPLETA System Failures	0.64
3. ADABASA System Failures	0.62
4. MVS/JES2 System Tuning/Improvements	0.73

TOTAL 3.76 HOURS**GRAND TOTAL FOR NAS/6650 9.99 HOURS****NAS/8043 and NAS/6650 Performance Statistics for December**

CPU	SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
8043	VM/SP3	744	0.00	744.00	7.75	736.25	99.0%
8043	MUSIC/SP	744	19.42	724.58	13.51	711.07	98.1%
8043	MVS/JES2	744	0.00	744.00	9.54	734.46	98.7%
8043	COMPLETA	744	0.00	744.00	11.03	732.97	98.5%
6650	MVS/JES2	744	0.00	744.00	10.33	733.67	98.6%
6650	COMPLETEA	211	0.00	211.00	7.99	203.01	96.2%
6650	ADABASA	744	12.19	731.81	18.06	713.75	97.5%

System Uptime = (Production Hrs. Achieved)/(Planned Production Hrs.)**Production Hrs. Achieved** = (Planned Production)-(Unplanned Maint.)**Scheduled Operating Hrs.** = (Planned Maint.) + (Planned Production)**MUSIC/SP Planned Maintenance Hours** include 19.42 Hrs. for system backup.**ADABASA'S Planned Maintenance Hours** include 12.19 Hrs. for system backup.

The NAS/8043 CPU achieved 100% uptime. The NAS/7360 DASD achieved 100% uptime.

The NAS/7350 DASD achieved 99.1% uptime. The NAS/6650 CPU achieved 100% uptime.

The NAS/7380 DASD achieved 100% uptime. The STC 8650 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

NAS/8043 CPU:**CPU, Tape, and Disk Subsystems (NAS)**

1. 7350 DASD Failures	6.47 HOURS
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Miscellaneous

1. Undetermined Causes for System Restarts	1.70
2. COMPLETA System Failures	0.31
3. MVS/JES2 System Tuning/Improvements	0.40
4. Emergency Power Down due to Air Conditioning Failures	6.96

TOTAL 9.37**GRAND TOTAL FOR NAS/8043 15.84 HOURS**

NAS/6650 CPU:

ISB Input/Output Station (IBM)

1. 2944 I/O Channel Extender Failure	5.80 HOURS
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Terminal Control System (COMTEN)

1. 3690 Terminal Controller Failure	4.82
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Miscellaneous

1. Undetermined Causes for System Restarts	0.82
2. COMPLETA System Tuning/Improvements	0.25
3. Emergency Power Down due to Air Conditioning Failures	7.14

TOTAL	8.21 HOURS
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GRAND TOTAL FOR NAS/6650	18.83 HOURS
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*   TECHNICAL   *
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NAS/8043 Program Hit Parade

The following programs were used the most frequently on the NAS/8043 during the months of November and December.

NOVEMBER TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

Program	Description	Number of Runs	Percent of Total
1. IEWL	Linkage Editor	23171	18.0
2. PGM=*DD	Compiled Program	22301	17.3
3. IKFCBL00	VS COBOL Compiler	16821	13.1
4. IEBGENER	IBM Utility	14076	10.9
5. SCRIPT	Waterloo/SCRIPT	8902	6.9
6. IFOX00	System Assembler	8118	6.3
7. SASLPA	SAS	6142	4.8
8. PTPCH	Dataset Lister	5023	3.9
9. IEFBR14	IBM Null Utility	4265	3.3
10. IEBPTPCH	IBM List Utility	3423	2.7

NOVEMBER TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

Program	Description	CPU Seconds	Percent of Total
1. PGM=*DD	Compiled Program	101517	41.4
2. SASLPA	SAS	28645	11.7
3. IKFCBL00	VS COBOL Compiler	25950	10.6
4. SCRIPT	Waterloo/SCRIPT	18826	7.7
5. IFOX00	System Assembler	17753	7.2
6. IEWL	Linkage Editor	8236	3.4
7. DAG01	User Program	5986	2.4
8. PTPCH	Dataset Lister	5316	2.2
9. LOADER	System Loader	3598	1.5
10. IEBGENER	IBM Utility	2758	1.1

DECEMBER TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

Program	Description	Number of Runs	Percent of Total
1. IEWL	Linkage Editor	14818	16.1
2. PGM=*DD	Compiled Program	14635	15.9
3. SCRIPT	Waterloo/SCRIPT	10981	12.0
4. IKFCBL00	VS COBOL Compiler	9146	10.0
5. IEBGENER	IBM Utility	8112	8.8
6. IFOX00	System Assembler	5213	5.7
7. SASLPA	SAS	5084	5.5
8. PTPCH	Dataset Lister	2174	2.4
9. IEBPTPCH	IBM List Utility	1841	2.0
10. IEFBR14	IBM Null Utility	1768	1.9

DECEMBER TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

Program	Description	CPU Seconds	Percent of Total
1. SCRIPT	Waterloo/SCRIPT	25923	16.8
2. SASLPA	SAS	24563	15.9
3. PGM=*DD	Compiled Program	21752	14.1
4. IKFCBL00	VS COBOL Compiler	14745	9.6
5. IFOX00	System Assembler	11216	7.3
6. LOADER	System Loader	9283	6.0
7. DAG01	User Program	7409	4.8
8. IEWL	Linkage Editor	5335	3.5
9. PTPCH	Dataset Lister	2060	1.3
10. IEBGENER	IBM Utility	1435	0.9

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About The VAX Cluster

By Ron Brashear, VAX System Manager

The VAXs are now in a very interesting and state-of-the art arrangement called a homogenous Cluster. From a computer scientist's point of view, it is extremely interesting to witness an operating system (VMS) extend itself, and form new databases whose purpose is to manage processes and devices in a multiple-CPU environment. Essentially, the Cluster hardware allows the operating system to create processes that build and maintain an environment that allows single Cluster-wide user, mail, and network databases. This means that users no longer have need of separate accounts on one VAX or the other (the Cluster appears as a single VAX). Terminal servers (themselves computers) communicate with VMX using DECNET protocol and allocate users to one machine or the other based on the current workload of both machines. The question of which machine is actually doing the user's processing should be irrelevant to the user.

Processes and databases are formed to manage Cluster-wide print and batch queues as well as Cluster-wide mail. From a hardware standpoint, this type of process-to-process-to-database communication is achieved via 70 MPS computer interconnects (CIs) which link CPUs to a device called a star coupler. This device provides redundancy from CI to CI. The DECNET protocol allows cooperating processes to utilize a Cluster-wide lock manager which gives a synchronized locking and unlocking of devices and files as they are needed by user processes running on the Cluster. One single system disk holds all CPU-specific and Cluster-wide initialization procedures as well as single copies of system executables (compilers, system images, etc.) and Cluster-common data bases. Individual boot blocks (one per CPU) are contained in an alias directory structure on the system disk so that all CPU's boot from that disk, utilizing their respective boot blocks and page and swap files located in different master-level directories. Thus, there is no need to have a separate system disk per CPU. Although many processes and data bases are still processor-specific (accounting, error-logging, operator-logging), the main user-oriented system process and data bases are now Cluster-wide, making life easier for users and system managers alike.

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Information Systems News

By Coy Hoggard, Manager of Information Systems

Vacant Student Records Data Control Assistant Position Filled

The position of Data Control Assistant for the Student Records Team, which was vacant since Edna Anderson's resignation September 13, has been filled. Rosemary Griffith transferred into this position from the Data Entry Section, effective November 18. Rosemary has been a Computing Center employee for approximately one and one-half years. She is also a part-time student and has been pursuing a BBA degree in BCIS since transferring from Texas A & M University.

Vacant Programmer Analyst Position Filled

Effective October 28, Bill Buntain was hired as a Programmer Analyst, filling the position vacated by John Hooper's resignation as of August 22. Bill is a 1975 graduate of the University of Nebraska (BMed) and earned a MM degree from NTSU in 1979 and a MBA in BCIS from NTSU in 1981. He comes to us from Mobil Oil in Dallas where he was employed since January of 1981. Bill is married and has two children. He and his family have been residents of Denton since 1981. Bill will assume leadership of the newly formed HRMIS (Human Resources Management Information System) Team (see related article).

Division of Fiscal Team Responsibilities

Effective with the hiring of Bill Buntain as a Programmer Analyst for the Payroll / Personnel / HRMIS areas, the functions of the Fiscal Systems Team, as it previously existed, have been divided. A new HRMIS Team has been formed to be responsible for the installation, modification, and implementation of the HRMIS (Human Resources Management Information System) to be acquired from Integral Systems, Inc., as well as coordination and maintenance of the existing Payroll / Personnel System. The existing Payroll / Personnel System will continue to be used by both TCOM and NTSU until the new HRMIS software is fully operational, after which time both schools will begin using HRMIS. This team will initially be staffed by Bill Buntain (Programmer Analyst / Team Leader) and Bill Shumate (Programmer). Janet Harmon will act as Data Control Assistant for both the HRMIS and Fiscal Systems Teams, but will "officially" continue to be attached to the Fiscal Team. Additional positions are planned for the HRMIS Team.

The Fiscal Systems Team will continue to coordinate and maintain the existing Accounting Systems (for both NTSU and TCOM as well as the BRS component of the SIMS software system. In the short term, major enhancements are planned for the BRS software. Longer term plans call for this team to also be responsible for the acquisition or development and implementation of a new University Accounting System for NTSU and TCOM. This team will initially be staffed by Jim Jones (Programmer Analyst / Team Leader), Bobby Collier (Programmer), Kay Teer (Programmer), and Janet Harmon, Data Control Assistant. As previously mentioned, Janet will do double duty by supporting this team as well as the HRMIS team. Kay Teer will also be leading a double life, spending 1/2 her time with the Student Records Team due to the transfer of Telka Clem (see "Academic Computing Services Gains New Position" at the beginning of this issue.)

MICROBITS
QUESTIONNAIRE

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The Microcomputer Maintenance Shop has devised this questionnaire to help us help you and your TI Microcomputer and Printer. With your help on answering these questions below, we can make sure that your computer has a scheduled maintenance check. This check will consist of a diagnostics testing and cleaning of the system. If you have a printer, this maintenance will also be provided at the time of the check. This maintenance check is administered by a technician from the Microcomputer Maintenance Shop. If any problems are detected during the check they can be rectified by the technician at that time. If a problem does arise between checks or you just have a question please give us a call at #2387.

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(PLEASE RETURN THIS THROUGH CAMPUS MAIL)

NAME: _____ PHONE#: _____

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TYPE OF EQUIPMENT: _____

NTSU #'S _____

DO YOU HAVE A MICROCOMPUTER THAT WE HAVE:

1) ☐ NEVER SERVICED?

2) ☐ SERVICED, BUT MORE THAN 6 MONTHS AGO?

3) ☐ SERVICED WITHIN THE LAST 6 MONTHS?

(IF THE ANSWERS ARE EITHER 1 OR 2, WE WOULD LIKE TO SCHEDULE A PREVENTATIVE MAINTENANCE CHECK FOR YOUR COMPUTER/S IN YOUR DEPT.)

PLEASE TAKE A MOMENT TO TELL US WHAT YOU THINK OF MICROBITS. HAS IT HELPED YOU UNDERSTAND YOUR MICROCOMPUTER? WHAT TOPICS WOULD YOU LIKE MICROBITS TO ADDRESS?

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PLEASE GIVE A CAMPUS ADDRESS (NOT BOX) IF POSSIBLE! - It's Cheaper !!

PLEASE RETURN TO:
Academic Computing Services
The Computing Center
NT Box 13495
North Texas State University
Denton, TX 76203